What is claimed is:

1. In a traction drive assembly comprising a carrier mountable to a support structure, a center shaft rotatably journaled in said carrier about a central axis; first and second tapered raceways carried by said center shaft and presented outwardly from said axis; a hub surrounding said shaft and having first and second outer raceways presented toward said first and second tapered inner raceways; and first and second planet rollers positioned between said first and second inner and outer raceways, respectively; said planet rollers being rotatable about a planet axis substantially parallel to said central axis; the improvement comprising a load supporting structure to transfer loads from said hub to said carrier and to bypass the central shaft; said load supporting structure comprising said carrier:

said carrier comprising a plurality of pockets having radially outwardly directed seats and planet axles received in said pockets and supported on said seats, said pockets substantially preventing said planet axles from moving radially inwardly relative to the central shaft while allowing said planet axles to move radially outwardly relative to said central shaft; said planet rollers being rotatably mounted about said planet axles; whereby, loads from said hub are transferred to said planet rollers, to said planet axles, and then to said carrier, such that said loads bypass said central shaft.

2. The traction drive assembly of claim 1 including a first sun roller and a second sun roller mounted on said center shaft to be rotated by said shaft as said shaft rotates; said first and second sun rollers defining said first and

second inner raceways and including first and second ends; said first ends of said sun rollers facing each other.

3. The traction drive assembly of claim 2 including a camming mechanisms which urges said first and second sun rollers apart to enhance engagement between said sun rollers and said planet rollers.

4. The traction drive assembly of Claim 3 wherein said camming mechanism comprises a plurality of balls and a biasing member which urges said sun rollers together.

5 The traction drive assembly of claim 4 wherein said shaft including a plurality of recesses; said sun rollers including a plurality of recesses formed in the first ends of said sun rollers; said recesses in said shaft and said sun rollers being sized to partially receive said balls; such that when said sun rollers are urged together by said biasing member, said recesses in said sun rollers and said shaft will cooperate to encase said balls; whereby, as said shaft is rotated, said balls bear against walls of said sun roller recesses to urge said sun rollers apart against the bias of said biasing member.

6. The traction drive assembly of claim 3 including a cage fixed to said shaft and extending radially from said shaft between said first and second sun rollers; said cage including a plurality of recesses and said sun rollers including a plurality of recesses in their respective first ends; said cage recesses and sun roller recesses being alignable with each other; said balls being received in said recesses of said cage and said sun rollers; whereby, as said shaft is rotated, said

balls bear against walls of said sun roller recesses to urge said sun rollers apart against the bias of said biasing member.

7. The traction drive assembly of claim 3 wherein said camming mechanism includes a biasing member to urge said sun rollers together, a ring fixed to said central shaft; said ring having at least one surface which is sloped to define a cam ramp, and a cam race on the first end of at least one of said sun rollers; whereby as said shaft rotates, said camming ramp rotates against the cam race of said at least one sun roller to urge said sun rollers apart against the force of said biasing member.

8. The traction drive assembly of claim 1 wherein said planet axle carries first and second tapered raceways directed outwardly from planet axis.

9. The traction drive assembly of claim 1 including a spacer on said planet axle between said first and second planet rollers.

10. The traction drive assembly of claim 1 wherein said planet axle is generally quadrilateral in radial cross-section.

11. The traction drive assembly according to claim 1 wherein the first raceways taper downwardly toward the axis in the same direction, and the second raceways taper downwardly toward the axis in the same direction and in the direction opposite to that in which the first raceways taper.

12. The traction drive assembly according to claim 11 wherein each of the raceways has a large end; and wherein the first and second inner raceways are closest at their large ends and the first and second outer raceways are closest at their large ends.

13. The traction drive assembly according to claim 1 where each planet axle has a first and a second planet roller around it.

14. The traction drive assembly according to claim 13 wherein the first and second planet rollers have end faces, and the first and second planet rollers around each axle contact each other at their end faces.

15. The traction drive assembly according to claim 14 wherein pure rolling contact exists between the side faces of first rollers and the first raceways, between the side faces of the second rollers and second raceways, and between the end faces of the first and second rollers around each axle.

16. The traction drive assembly according to claim 1 including bearings located between the planet rollers and the planet axles for transferring radial loads between the carrier and rollers.

17. In combination with a supporting structure, a hub assembly for facilitating rotation about an axis that is fixed in position with respect to the supporting structure, said hub assembly comprising:

a carrier attached securely to the supporting structure and including planet axles extending generally axially and arranged around the axis; said carrier including axle supporting members against which said planet axles seat to substantially prevent said planet axles from moving radially inwardly relative to said axis;

a center shaft located within said carrier and carrying first and second sun rollers defining first and second inner raceways which are presented outwardly

away from the axis and tapered downwardly away from each other so that the inner raceways are closest where they have their greatest diameters;

a hub located around the axles of the carrier and having first and second outer raceways which taper downwardly away from each other so that the first and second outer raceways are closest where they have their greatest diameters, the first outer raceway being presented toward the first inner raceway and the second outer raceway being presented toward the second inner raceway;

first planet rollers located around the planet axles and between the first raceways, each first planet roller having a tapered side face where it contacts the first raceways and an end face generally at the large end of its tapered side face;

second planet rollers located around the planet axles between the second raceways, each planet second roller having a tapered side face where it contacts the second raceways and an end face generally at the large end of its side face;

there being around each planet axle a first planet roller and a second planet roller, with the first and second planet rollers around each axle contacting each other at their end faces; the planet rollers being rotatable relative to the planet axles to transfer between the planet rollers and the planet axles loads that are directed radially or axially with respect to the axis whereby both the shaft and hub will rotate about the axis, with the shaft rotating at a velocity greater than the hub and whereby inwardly directed radial loads are transferred from said hub to said carrier while bypassing said center shaft.

18. The combination according to claim 17 including bearings located between the planet axles and the planet rollers.

19. The combination according to claim 17 wherein the shaft has a spindle located within the carrier and further includes first and second sun rollers located around the spindle, with the first inner raceway being on the first sun roller and the second inner raceway being on the second sun roller.

20. In combination with a supporting structure, a hub assembly for facilitating rotation about an axis that is fixed in position with respect to the supporting structure, said hub assembly comprising:

a carrier attached securely to the supporting structure and including axles extending generally axially and arranged around the axis;

a center shaft located within said carrier and carrying first and second inner raceways which are presented outwardly away from the axis and tapered downwardly away from each other so that the inner raceways are closest where they have their greatest diameters; the shaft having a spindle located within the carrier; the spindle of the shaft containing sockets that open outwardly away from the axis;

a hub located around the axles of the carrier and having first and second outer raceways which taper downwardly away from each other so that the first and second outer raceways are closest where they have their greatest diameters, the first outer raceway being presented toward the first inner raceway and the second outer raceway being presented toward the second inner raceway;

first planet rollers located around the axles and between the first raceways, each first planet roller having a tapered side face where it contacts the first raceways and an end face generally at the large end of its tapered side face;

second planet rollers located around the axles between the second raceways, each second planet roller having a tapered side face where it contacts the second raceways and an end face generally at the large end of its side face;

there being around each axle a first planet roller and a second planet roller, with the first and second planet rollers around each axle contacting each other at their end faces; the planet rollers being rotatable relative to the axles to transfer between the rollers and the axles loads that are directed radially or axially with respect to the axis whereby both the shaft and hub will rotate about the axis, with the shaft rotating at a velocity greater than the hub;

first and second sun rollers located around the spindle, with the first inner raceway being on the first sun roller and the second inner raceway being on the second sun roller; the sun rollers having sockets that open toward the sockets in the spindle; and wherein the shaft further comprises elements located in the sockets of the spindle and the sockets of the sun rollers to key the rollers to the shaft, the elements and sockets further being configured to effect a camming action that urges the sun rollers apart when torque is transmitted between the sun rollers and the spindle.

21. The combination according to claim 17 wherein the hub comprises first and second rings on which the first and second outer raceways are located, respectively.

22. The combination according to claim 17 wherein the carrier has a flange at which the carrier is attached to the supporting structure and a spindle projecting from the flange with the planet axles being on the spindle of the carrier.

23. The combination according to claim 22 wherein the spindle of the carrier has cavities in which the planet rollers are located.

24. The combination according to claim 18 wherein the planet axles have bearing seats, and the bearings have inner races which fit around the axle bearing seats and rolling elements which are located around the inner races and within the rollers, the inner races being against the axles at the bearing seat to transfer loads from the planet rollers to the axles.

25. The combination according to claim 17 and further comprising a road wheel attached securely to the hub.

26. The combination according to claim 17 and further comprising an electric motor interposed between the carrier of the hub assembly and the supporting structure; and wherein the shaft extends through the motor and is rotated by the motor.

27. The combination according to claim 17 wherein the planet rollers are bearings, the planet rollers including roller inner races and roller outer races and rolling elements positioned between the roller inner and outer races.

28. A hub assembly for supporting radial and axial loads and for effecting a change in angular velocity about an axis of rotation, said hub assembly comprising:

a carrier having axles arranged around the axis and extending generally axially;

a center shaft located along the axis;

a first sun roller and a second sun roller mounted on said center shaft to be rotated by said shaft as said shaft rotates; said first and second sun rollers defining first and second inner raceways that are tapered and are presented outwardly away from the axis;

a hub surrounding the shaft and having first and second outer raceways that are tapered and presented inwardly toward the first and second inner raceways, respectively of the center shaft;

first planet rollers located around the axles and between the first raceways and having side faces where they contact the first raceways; and

second planet rollers located around the axles and between the second raceways and having side faces where they contact the second raceways;

said first and second sun rollers including axial inner faces and pockets formed in said inner faces; shaft including pockets aligned with said pockets of said sun rollers; said hub assembly including wedging elements received in said shaft and sun roller pockets; the engagement of said wedging elements and said shaft and sun roller pockets rotationally connecting said sun rollers to said shaft such that rotation of said shaft rotates said sun rollers.

29. The hub assembly of claim 28 wherein said wedging elements are balls.

30. The hub assembly of 28 wherein said pockets are formed on said shaft.

31. The hub assembly of claim 28 wherein said hub assembly includes a cage fixed to said shaft and extending radially from said shaft between said first and second sun rollers; said pockets being formed in said cage.

32. A hub assembly for supporting radial and axial loads and for effecting a change in angular velocity about an axis of rotation, said hub assembly comprising:

a carrier having axles arranged around the axis and extending generally axially;

a center shaft located along the axis;

a first sun roller and a second sun roller mounted on said center shaft to be rotated by said shaft as said shaft rotates; said first and second sun rollers defining first and second inner raceways that are tapered and are presented outwardly away from the axis; said sun rollers fitting loosely over the center shaft; said sun rollers being operatively connected to said center shaft by means of a camming mechanism to be rotated by said center shaft;

a hub surrounding the shaft and having first and second outer raceways that are tapered and presented inwardly toward the first and second inner raceways, respectively of the center shaft;

first planet rollers located around the axles and between the first raceways and having side faces where they contact the first raceways; and

second planet rollers located around the axles and between the second raceways and having side faces where they contact the second raceways.

33. The hub assembly of Claim 32 wherein said camming mechanism comprises a plurality of balls and a biasing member which urges said sun rollers together.

34 The hub assembly of claim 33 wherein said shaft including a plurality of recesses and said sun and said sun rollers including a plurality of recesses formed in the first ends of said sun rollers; said recesses in said shaft and said sun rollers being sized to partially receive said balls; such that when said sun rollers are urged together by said biasing member, said recesses in said sun rollers and said shaft will cooperate to encase said balls; whereby, as said shaft is rotated, said balls bear against walls of said sun roller recesses to urge said sun rollers apart against the bias of said biasing member.

35. The hub assembly of claim 34 including a cage fixed to said shaft and extending radially from said shaft between said first and second sun rollers; said cage including a plurality of recesses and said sun rollers including a plurality of recesses in their respective first ends; said cage recesses and sun roller recesses being alignable with each other; said balls being received in said recesses of said cage and said sun rollers; whereby, as said shaft is rotated, said balls bear against walls of said sun roller recesses to urge said sun rollers apart against the bias of said biasing member.

36. The hub assembly of claim 32 wherein said camming mechanism includes a biasing member to urge said sun rollers together, a ring fixed to said

central shaft; said ring having opposed side surfaces which extend from said shaft; at least one of said ring side surfaces being sloped to define a cam ramp, and a cam race on the first end of at least one of said sun rollers; whereby as said shaft rotates, said camming ramp rotates against the cam race of said at least one sun roller to urge said sun rollers apart against the force of said biasing member.

37. The hub assembly of claim 36 wherein said both side surfaces of said ring are sloped; said ring having a pair of sections of narrow width and a pair of sections of wide width; said sections of wide width being positioned between said sections of narrow width.

38. The hub assembly of claim 37 wherein said ramp and cam races are defined by a sweeping line that is generally perpendicular to the center shaft and which sweeps along a helical path.